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INDUSTRIAL FISHERY PRODUCTS

SITUATION & OUTLOOK

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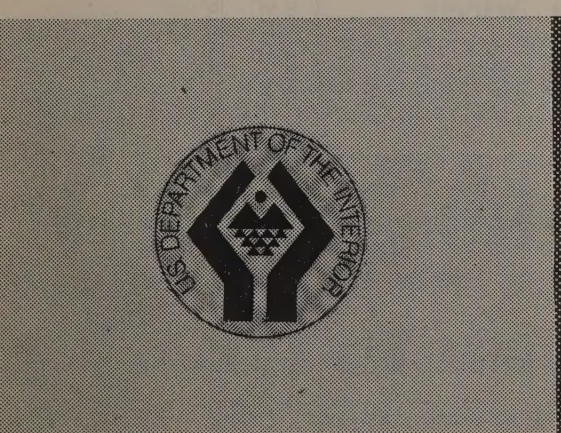
Current Economic Analysis · I 3 · October 1968



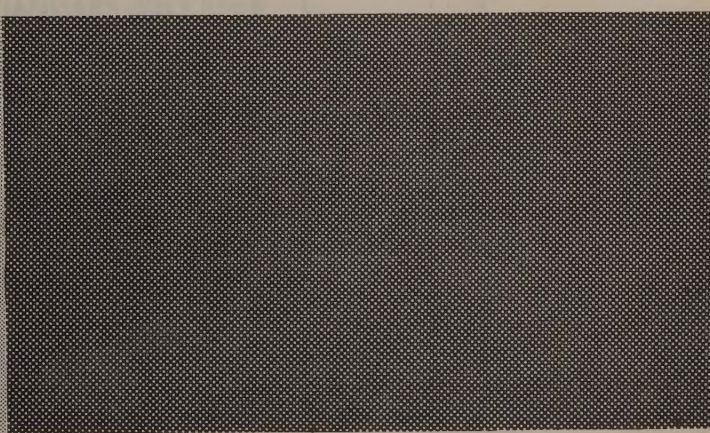


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Table 1.--Menhaden fishery: number of vessels and fishermen; quantity and value of purse seine landings; prices; and output and index of output per fisherman, 1951, 1952, 1955, and 1957-66

Year	Vessels	Fishermen	Purse seine landings	Total value	Prices	Output per fisherman			Index of output per fisherman		
						Landings per man	Value		Quantity	Value	
							Current $	Deflated		Current $	Deflated
Column	1	2	3	4	5	6	7	8	9	10	11
					Col. 4÷ Col. 3	Col. 3÷ Col. 2	Col. 4÷ Col. 2	Col. 7 1/	Col. 6 2/	Col. 7 2/	Col. 8 2/
	Number		Mil. lbs.	Mil.$	¢/lb.	1,000 lb.	Dollars		1957-59=100		
1951	159	3597	1,082.0	12.5	1.2	300.8	3480	3600	81.2	72.6	75.1
1952	167	3810	1,352.4	12.9	1.0	355.0	3390	3610	95.8	70.7	75.3
1955	204	4735	1,835.5	24.6	1.3	387.6	5200	5580	104.7	108.4	116.4
1957	219	5167	1,635.7	21.6	1.3	316.6	4190	4230	85.5	87.4	88.2
1958	201	4544	1,516.6	21.5	1.4	333.8	4740	4720	90.1	98.8	98.5
1959	222	4684	2,157.3	25.6	1.2	460.6	5460	5430	124.4	113.8	113.8
1960	183	4353	1,975.4	19.7	1.0	453.8	4530	4500	122.5	94.4	93.9
1961	180	3495	2,259.4	24.8	1.1	646.5	7100	7080	174.6	148.0	147.7
1962	180	3339	2,289.3	25.0	1.1	685.6	7490	7450	185.1	156.2	155.4
1963	179	3140	1,762.0	21.7	1.2	561.1	6900	6880	151.5	143.8	143.5
1964	183	3196	1,525.3	21.4	1.4	477.2	6710	6680	128.9	139.9	139.4
1965	161	2722	1,673.6	26.2	1.6	614.8	9640	9400	166.0	201.0	196.1
1966	153	2620	1,276.9	21.2	1.7	487.4	8090	7640	131.6	168.6	159.4

1/ Divided by wholesale price index for all commodities; 1957-59 = 100.
2/ Divided by 1957-59 average and multiplied by 100.

Source: U.S. Department of the Interior, Bureau of Commercial Fisheries, Fishery Statistics of the United States.

INDUSTRIAL FISHERY PRODUCTS

Situation and Outlook

Approved by the Bureau of Commercial Fisheries Situation and Outlook Board, October 11, 1968

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SUMMARY

REVIEW: JANUARY-JULY 1968

Fish Meal

The United States produced an estimated 103,300 short tons[1/] of fish meal the first 7 months of this year--down 8 percent from the amount produced in the same period last year and down 20 percent from the 1963-67 average. More meal was made from menhaden this year than last--69,900 tons compared to 63,100 tons in 1967.

Fish meal imports for January-July 1968 were 499,900 tons--up 48 percent from the same period last year and up 90 percent from the

1/ Short tons are used in this report unless otherwise specified.

1963-67 average. Peru supplied 396,600 tons or 79 percent of United States imports in the 7-month period. Imports from Peru were 66 percent more than last year and more than double the 1963-67 average. Imports from Norway were less than half of what they were last year but 84 percent more than the 1963-67 average.

Total supplies of fish meal in the United States (except stocks, which are not reported) during January-July were 603,200 tons--one-third more than in the same period last year and 1-1/2 times the 1963-67 average. Imports were 83 percent of total fish meal supplies in January-July 1968 and 75 percent of total supplies last year.

Preliminary estimates of production and imports in August put total supplies at 119,300 tons for that month and 722,400 tons for January-August.

World production of fish meal during the first 7 months of 1968 was 2,243,000 metric tons (2,472,400 short tons)--up 7 percent from the same period last year. Over 80 percent of the meal--1,823,900 metric tons (2,010,500 short tons)--was made by FEO[2/] countries. Peru alone produced nearly half of reported world production--1,048,900 metric tons (1,156,200 short tons).

FEO countries exported 1,874,400 metric tons (2,066,200 short tons) of fish meal in January-July 1968--up 29 percent from the same period last year. Peru exported 1,255,200 metric tons (1,383,600 short tons) of fish meal the first 7 months of this year--up 42 percent from 1967. Norway was the second largest exporter, shipping 263,800 metric tons (290,800 short tons).

Twenty-two percent of total FEO exports came to the United States in January-July 1968--compared to 19 percent last year.

Stocks of fish meal held by FEO countries totaled 632,600 metric tons (697,300 short tons) on August 1 of this year--the lowest amount since April 1966. Peru held 57 percent of total FEO stocks on August 1--about the same percentage as last year.

Major factors affecting the use of fish meal in the United States are the price of fish meal, the price of soybean meal, and the number of broiler chicks on feed. The average price of menhaden meal (60 percent protein) at New York during June and most of July was $149 per ton, bagged, f.o.b. East Coast and Gulf[3/] points. During the

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2/ Fishmeal Exporters Organization; member countries are Angola, Chile, Iceland, Norway, Peru, South Africa, and South West Africa.

3/ U.S. coast on the Gulf of Mexico.

latter part of July the price rose to $151 per ton and remained at that level through the first week of August. By September, the average price of menhaden meal had dropped to $145 per ton, bagged, f.o.b. East Coast and Gulf points.

The average price of Peruvian fish meal (65 percent protein) rose to $144.50 per ton, f.o.b. East Coast and Gulf ports, the first part of July. Prices started to fall the second week in July and had dropped to an average of $129 by the end of September.

The average price of soybean meal--a major competitor of fish meal in the protein feed market--rose fairly rapidly during May-August 1968 but showed signs of weakening by the end of September.

The number of broiler chicks--major users of fish meal in the United States--placed on feed during the first 7 months of 1968 was 1,578.2 million--about the same as last year but up 10 percent from the 1963-67 average. The total number for January-September was 2,007.1 million--still about the same as last year but up 12 percent from the 1963-67 average.

Fish Solubles

The United States made about 39,200 tons of fish solubles in January-July 1968--down 7 percent from the same period in 1967 and down 23 percent from the 1963-67 average.

Imports of fish solubles during the first 7 months were 1,200 tons--less than half the amount imported in 1967. Total supplies of fish solubles--production plus imports--in January-July were 40,500 tons. Preliminary estimates of production and imports in August make the total for January-August about 52,400 tons--compared to 57,500 tons last year.

The average price of menhaden solubles in August was $52.50 per ton, f.o.b. East Coast plants, and in September was $51.90 per ton--the lowest average since September 1961. Even though prices for fish solubles remain quite competitive with prices of fish meal and other substitutes, the use of fish solubles has been very light through September.

Fish Oil

About 75.7 million pounds of fish oil were produced in the United States during the first 7 months of 1968--31 percent more than during

the same period in 1967 but still well below the 1963-67 average. Eighty-seven percent of the fish oil was made from menhaden. Production for August is estimated at 30.9 million pounds, making the January-August total about 106.6 million pounds--up one-third from 1967.

The United States imported 34.1 million pounds of crude and refined whale oil in January-July 1968--up 29 percent from last year but about the same as the 1963-67 average. Nearly all of this oil was sperm oil. Japan supplied slightly over half the whale oil imports in 1968--compared to only 3 percent in 1967.

Stocks of fish oil (excluding sperm oil) in the United States were 103.6 million pounds on August 1, 1968--up 30 percent from stocks held at the beginning of the year.

In January-July 1968, the United States used 18.5 million pounds of fish oil in the production of paint, varnish, resin, plastics, lubricants, and other inedible products. Fish oil exports were 19.8 million pounds in the same period. Sweden received 75 percent of our oil exports.

Prices of menhaden oil have been declining steadily since May 1966 when the average price at New York was 9.75 cents per pound, f.o.b. East Coast plants. In August this year the average price was 4.55 cents per pound and in September was 4.4 cents per pound.

OUTLOOK: OCTOBER-DECEMBER 1968

Fish Meal

Based on production figures for the first 8 months of 1968, the Bureau of Commercial Fisheries estimates about 6 percent more menhaden meal will be produced this year than last during the fourth quarter. However, meal made from other fish during the fourth quarter probably will be down 25 to 30 percent from a year earlier. Total production of fish meal for the fourth quarter 1968 is estimated to be about 33,000 tons.

Imports in the fourth quarter of this year are estimated to be at least as high as last year--183,400 tons--and possibly as much as 200,000 tons or more. This estimate is based on the assumption that the ratio between U.S. fish meal price and U.S. soybean meal price, and between U.S. fish meal price and the price of fish meal in Europe are about the same during the fourth quarter as they were in September.

Total supplies of fish meal (except stocks) available for use in the United States during October-December are expected to be at least 200,000 tons and could be as high as 235,000 tons or more.

If the ratio between the price of fish meal and price of soybean meal is the same during the fourth quarter as it was in September, and if about 600 million broiler chicks are put on feed in that quarter, then the Bureau estimates 160,000 tons to 190,000 tons of fish meal will be used in the fourth quarter. If up to 650 million chicks are placed, up to 210,000 tons of meal could be used.

Soybean meal prices are expected to be lower in the fourth quarter than they were in July-September owing to heavy supplies of soybeans. Assuming fish meal prices remain at their present level, decreasing soybean meal prices should mean an increase in the use of soybean meal as a source of protein in relation to fish meal. However, low soybean meal prices will tend to hold fish meal prices down.

Fish Solubles

Production of fish solubles during the fourth quarter of this year is estimated to be 13,000 to 14,000 tons. Imports are not expected to be much over 600 tons in the fourth quarter, making estimated total supplies less than 15,000 tons during that period.

Fish Oil

An analysis of the trend of U.S. oil production over the past 8 years points to lower production this year than last during the fourth quarter. However, another analysis, relating fourth quarter oil production to production in the first 8 months of the year, indicates more fish oil will be made this year than last in the fourth quarter--possibly over 30 million pounds. Over 80 percent of this oil probably will come from menhaden.

The domestic use of fish oil has declined steadily since 1961. This trend has continued through the first 8 months of 1968 and indicates consumption in the fourth quarter would be 7.0 to 7.5 million pounds. However, current ratios between the price of menhaden oil and the prices of competing industrial oils, such as tall, tung, and linseed, point to an increase in the use of fish oil in the United States--possibly up to 11 million pounds in the last 3 months of 1968.

REVIEW

January-July 1968

MENHADEN LANDINGS

For the first 7 months, menhaden landings were up 8 percent over 1967 landings but below the 1963-67 average by over 20 percent (table 2). Nearly half of these landings were in July. The top 3 landings months are June, July, and August.

About 71 percent of the menhaden were landed on the Gulf Coast; most of the rest were landed in the Chesapeake region of the Atlantic Coast area (table 2). Nearly the same amount of menhaden were caught in the Gulf Coast area this year as last during January-July. The increase in landings occurred in the Chesapeake and Middle Atlantic regions of the Atlantic Coast area (table 2).

Table 2.--Menhaden landings by area, January-July 1967, 1968, and 1963-67 average

Area	1963-67 average		1967		1968[1/]	
	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent
Middle Atlantic	75.5	9.0	11.9	2.0	37.4	5.7
Chesapeake	105.0	12.5	80.6	13.2	104.6	15.9
South Atlantic	53.9	6.4	52.0	8.6	51.4	7.8
Total Atlantic[2/]	234.5	28.0	144.5	23.8	193.4	29.4
Gulf Coast	603.2	72.0	463.4	76.2	463.6	70.6
Total U.S.	837.7	100.0	607.9	100.0	657.0	100.0

1/ Preliminary.
2/ Figures may not add to total because of rounding.

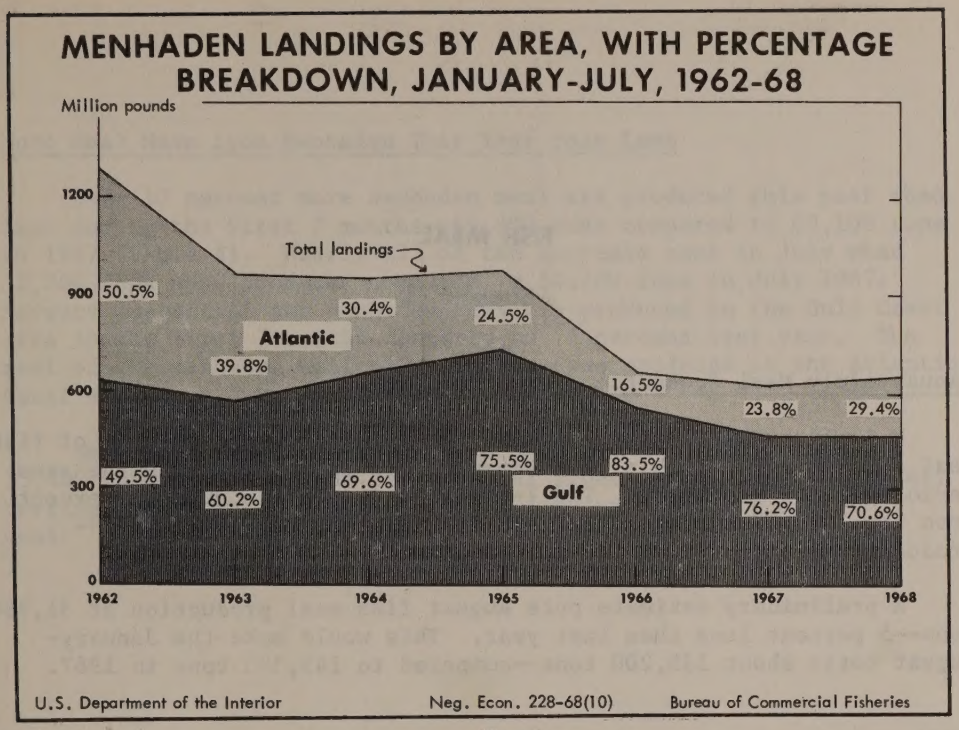

Figure 1

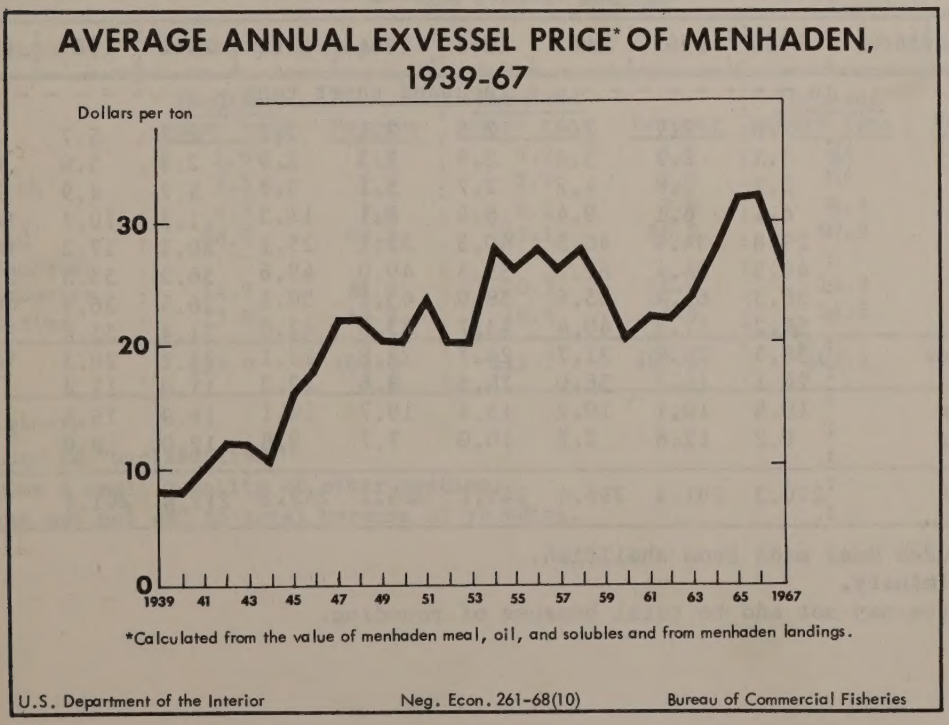

Figure 2

FISH MEAL

Supply

January-July Meal Production--Down from 1967

U.S. fish meal plants produced about 103,300 short tons[1/] of fish meal through July of this year--compared to 111,700 tons in the same period in 1967 (table 3). The 7-month production is down 20 percent from the 1963-67 average; however, in 2 months--April and July--production was greater this year than last.

A preliminary estimate puts August fish meal production at 31,900 tons--5 percent less than last year. This would make the January-August total about 135,200 tons--compared to 145,300 tons in 1967.

Table 3.--U.S. production of fish meal by month, 1960-68[1/]

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[2/]
	Thousand short tons								
January	3.8	2.7	2.9	2.3	2.1	3.2	2.8	5.7	1.9
February	3.1	2.1	3.6	2.9	2.3	2.9	2.3	3.9	2.1
March	3.1	2.8	4.2	2.7	3.1	3.8	5.7	4.9	3.9
April	6.1	6.1	9.4	8.4	8.1	11.3	11.3	10.1	10.7
May	19.8	34.4	40.5	40.3	32.1	25.1	20.3	17.2	16.6
June	44.3	54.4	61.2	35.3	49.0	48.6	36.9	33.5	27.3
July	56.3	63.4	55.6	38.9	45.2	50.1	36.5	36.4	40.7
August	51.2	57.5	40.4	43.7	33.5	42.0	31.4	33.6	31.9
September	38.5	28.8	31.7	24.7	22.8	21.1	23.2	20.3	
October	24.1	16.2	36.0	18.5	8.6	12.3	11.0	11.4	
November	10.8	10.1	10.2	13.4	10.7	12.1	18.9	15.4	
December	9.2	12.8	2.7	10.0	7.7	9.8	12.0	9.0	
Total[3/]	270.3	291.3	298.4	241.1	225.2	242.3	212.4	201.4	

1/ Excludes meal made from shellfish.
2/ Preliminary.
3/ Figures may not add to total because of rounding.

More Meal Made from Menhaden This Year than Last

Over 10 percent more menhaden meal was produced this year than last during the first 7 months--69,900 tons compared to 63,100 tons in 1967 (table 4). Nearly all of the increase came in July when 32,200 tons were produced compared to 24,700 tons in July 1967. Seventy percent of the menhaden meal was produced in the Gulf Coast area in the first 7 months compared to 75 percent last year. The rest of the menhaden meal--20,800 tons--was produced in the Atlantic Coast area.

Meal made from fish other than menhaden in January-July was 33,400 tons or 32 percent of the total production. Tuna, mackerel, herring, and a variety of industrial fish were used to make this meal.

Table 4.--U.S. production of fish meal by raw material source, January-July 1967, 1968 and 1963-67 average

Source	1963-67 average		1967		1968[1/]	
	Thousand short tons	Percent	Thousand short tons	Percent	Thousand short tons	Percent
Alewives	1.9	1.5	4.2	3.8	[2/]	-
Groundfish	2.5	1.9	2.9	2.6	[2/]	-
Herring	4.7	3.6	4.2	3.8	4.3	4.2
Menhaden[3/]	88.0	68.2	63.1	56.5	69.9	67.7
Tuna, mackerel and anchovies	14.9	11.6	20.5	18.4	14.3	13.8
Unclassified	17.0	13.2	16.6	14.9	14.8	14.3
Total[4/]	129.0	100.0	111.7	100.0	103.3	100.0

[1/] Preliminary.
[2/] Included in "unclassified."
[3/] Includes a small quantity of other species.
[4/] Figures may not add to total because of rounding.

Table 5.--Production of menhaden meal by area and by month, 1960-68[1/]

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[2/]
	Thousand short tons								
	Atlantic Coast								
January	0.3	0.5	0.2	-	0.1	0.2	0.5	-	-
February	1/	-	-	-	-	-	-	-	-
March	1/	-	-	-	-	-	-	-	-
April	0.7	1.2	0.7	1.1	0.9	0.6	0.2	1.1	0.7
May	3.2	9.0	18.0	12.8	5.4	3.9	1.1	1.9	2.6
June	19.3	26.0	30.5	12.9	12.2	12.6	4.6	6.6	7.0
July	30.2	35.9	23.2	13.5	11.7	8.8	6.0	6.0	10.5
August	30.8	28.9	15.7	11.6	11.5	12.7	7.2	6.8	7.1
September	18.5	17.7	12.3	9.8	7.2	7.5	5.8	3.5	
October	15.8	7.8	23.8	6.1	4.4	6.5	5.7	4.5	
November	8.0	6.6	6.5	8.9	7.2	8.5	14.8	10.2	
December	5.9	9.4	0.3	6.3	5.0	6.1	7.1	6.2	
Total[3/]	132.7	143.0	131.2	83.0	65.6	67.4	53.0	46.9	
	Gulf Coast								
January	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	0.1	-	-
April	0.9	2.4	3.3	4.0	2.0	6.7	3.7	3.7	3.1
May	12.2	21.1	13.9	22.0	17.3	14.9	12.9	8.4	8.9
June	19.2	23.7	23.1	16.7	27.5	27.8	22.5	16.7	15.4
July	20.3	21.5	25.0	18.0	22.3	30.4	18.9	18.6	21.7
August	14.3	23.0	18.0	24.4	14.5	20.7	12.4	16.4	17.7
September	13.8	7.2	15.0	9.8	10.8	7.5	11.4	7.5	
October	4.5	5.4	9.4	6.3	0.3	0.6	-	0.9	
November	0.4	0.2	0.8	1/	-	-	-	-	
December	-	-	-	-	-	-	-	-	
Total[3/]	85.6	104.5	108.5	101.2	94.7	108.6	81.9	72.2	
	Total[3/]								
January	0.3	0.5	0.2	-	0.1	0.2	0.5	-	-
February	1/	-	-	-	-	-	-	-	-
March	1/	-	-	-	-	-	0.1	-	-
April	1.6	3.6	4.0	5.1	2.9	7.3	3.8	4.8	3.8
May	15.4	30.1	31.9	34.8	22.7	18.8	14.0	10.3	11.5
June	38.5	49.7	53.6	29.6	39.7	40.4	27.1	23.3	22.3
July	50.5	57.4	48.2	31.5	34.0	39.2	24.9	24.7	32.2
August	45.1	51.9	33.7	36.0	26.0	33.4	19.7	23.2	24.8
September	32.3	24.9	27.3	19.6	18.0	15.0	17.2	11.0	
October	20.3	13.2	33.2	12.4	4.7	7.1	5.7	5.4	
November	8.4	6.8	7.3	8.9	7.2	8.5	14.8	10.2	
December	5.9	9.4	0.3	6.3	5.0	6.1	7.1	6.2	
Total[3/]	218.3	247.5	239.7	184.2	160.3	176.0	135.0	119.1	

1/ Includes a small amount of meal from other species.

2/ Preliminary.

3/ Figures may not add to total because of rounding.

January-July Imports--Up 48 Percent over 1967; August Imports--Up 17 Percent

The United States imported 499,900 tons of fish meal during January-July 1968--up 48 percent from the same period last year and up 90 percent from the 1963-67 average (table 6). A record amount of fish meal came into the United States in July--91,700 tons. The previous record was 90,900 tons in January of this year.

U.S. imports from Peru during the 7-month period were 396,600 tons or 79 percent of total imports (table 7). This amount is 66 percent more than imports from Peru the same period last year and more than double the 1963-67 average. Imports from Chile during January-July were 41,600 tons--four times more than last year. Imports from Canada also increased--from 25,400 tons in January-July 1967 to 30,000 tons in 1968 (table 7).

Imports from Norway were less than half of what they were last year but 84 percent more than the 1963-67 average. As explained more fully in the next section, fish meal production in Norway has been less than expected owing to unavailability of herring in major fishing areas.

In August, the United States imported 87,400 tons of fish meal--compared to 74,800 tons last year (table 6). Slightly over tow-thirds of this meal came from Peru, 20 percent from Chile, and 9 percent from Canada. The January-August total for 1968 is 587,300 tons and for 1967 is 412,400 tons. Imports for January-August 1968 are just 10 percent below total imports for 1967.

Table 6.--U.S. imports of fish meal by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[1/]
	Thousand short tons								
January	8.6	9.5	25.4	18.5	31.0	16.0	15.3	42.0	90.9
February	8.1	14.3	18.8	40.1	35.3	25.5	25.2	44.4	49.0
March	18.7	20.5	18.5	40.5	40.1	53.7	33.6	74.1	54.7
April	10.4	19.1	26.4	26.6	56.0	39.7	39.5	50.0	62.3
May	9.5	25.1	25.3	31.1	59.5	30.5	35.0	39.0	70.4
June	11.2	19.3	26.5	18.5	34.5	44.5	45.6	40.6	80.9
July	13.1	18.7	25.9	43.2	28.9	18.7	49.0	47.6	91.7
August	8.3	19.0	28.3	44.0	36.5	13.9	59.4	74.8	87.4
September	9.5	13.9	13.7	35.3	34.1	6.8	43.3	55.7	
October	12.5	9.4	12.7	31.4	19.7	4.8	35.4	50.1	
November	6.1	25.6	11.9	17.4	25.7	5.7	35.7	63.0	
December	15.6	23.3	19.0	29.7	37.8	11.0	30.8	70.2	
Total[2/]	131.6	217.8	252.3	376.3	439.1	270.7	447.8	651.5	

[1/] Preliminary.

[2/] Figures may not add to total because of rounding.

Table 7.--U.S. imports of fish meal by country of origin, January-July 1967, 1968, 1963-67 average

Country of origin	1963-67 average		1967		1968	
	Thousand short tons	Percent	Thousand short tons	Percent	Thousand short tons	Percent
Canada	28.3	10.8	25.4	7.5	30.0	6.0
Chile	18.4	7.0	10.1	3.0	41.6	8.3
Norway	12.8	4.9	58.2	17.2	23.6	4.7
Peru	194.7	74.1	238.6	70.7	396.6	79.3
South Africa and South West Africa	4.5	1.7	-	-	-	-
Other	3.9	1.5	5.4	1.6	8.1	1.6
Total[1/]	262.6	100.0	337.6	100.0	499.9	100.0

[1/] Figures may not add to total because of rounding.

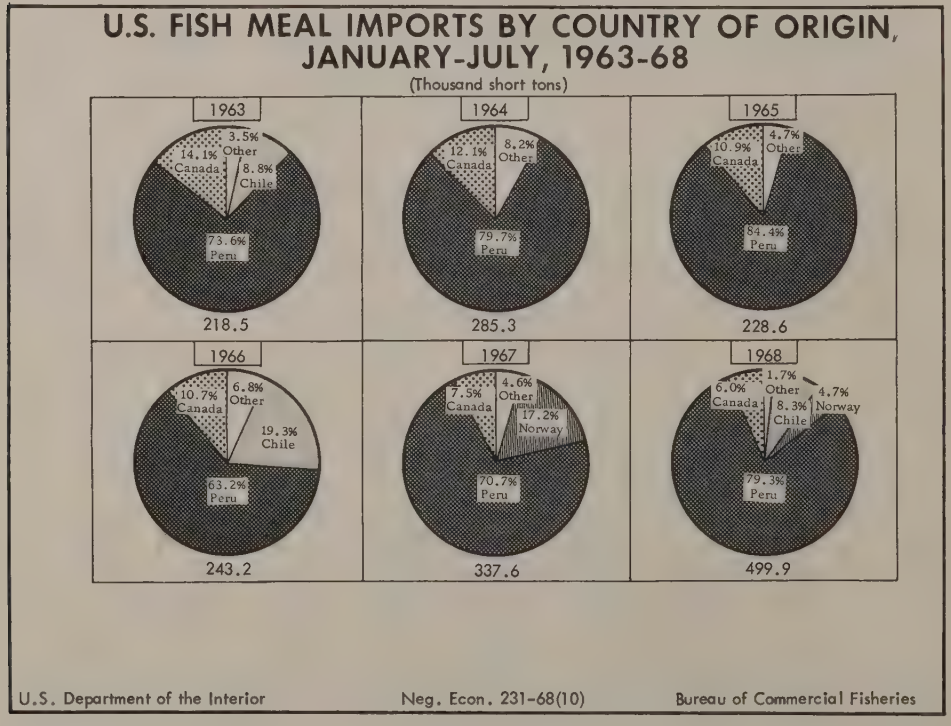

Figure 3

Total Fish Meal Supplies the First 7 Months--Well above Average

The total amount of fish meal available for consumption in the United States (excluding stocks, which are not reported) during January-July was 603,200 tons--one-third more than in the same period in 1967 and 1-1/2 times the 1963-67 average (table 8). Even though domestic production of fish meal in January-July was less than last year, imports during the first 7 months were substantial, creating the increase in total supplies.

Imports accounted for 83 percent of total supplies in January-July 1968 compared to 75 percent in 1967 and an average of 67 percent in 1963-67 (table 9).

Preliminary estimates for production and imports during August put total supplies at 119,300 tons for that month and 722,400 tons for January-August 1968--up 30 percent from the same period in 1967.

Imports made up 73 percent of August supplies and 81 percent of total supplies for January-August.

Table 8.--Total fish meal available in the United States: production plus imports, by month, 1960-68[1/]

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[2/]
	Thousand short tons								
January	12.4	12.2	28.3	20.8	33.1	19.2	18.1	47.7	92.8
February	11.2	16.4	22.4	43.0	37.6	28.4	27.5	48.3	51.1
March	21.8	23.3	22.7	43.2	43.2	57.5	39.2	79.1	58.5
April	16.5	25.2	35.8	35.0	64.1	51.0	50.8	60.0	73.0
May	29.3	59.6	65.8	71.4	91.6	55.6	55.3	56.2	87.0
June	55.5	73.7	87.6	53.8	83.5	93.1	82.6	74.1	108.2
July	69.4	82.1	81.5	82.1	74.1	68.8	85.5	84.0	132.5
August	59.5	76.6	68.7	87.7	70.0	55.8	90.8	108.4	119.3
September	48.0	42.7	45.4	60.0	56.9	27.9	66.5	76.0	
October	36.6	25.6	48.7	49.9	28.3	17.1	46.4	61.5	
November	16.9	35.7	22.1	30.8	36.4	17.8	54.7	78.4	
December	24.8	36.1	21.7	39.7	45.5	21.0	42.8	79.2	
Total[3/]	401.9	509.1	550.7	617.4	664.3	513.0	660.2	852.9	

[1/] Excludes meal made from shellfish.

[2/] Preliminary.

[3/] Figures may not add to total because of rounding.

Table 9.--U.S. imports of fish meal as a percent of total fish meal[1/] available in the United States, by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968
	Percent								
January	69.4	77.9	89.8	88.9	93.6	83.3	84.5	88.0	98.0
February	72.3	87.2	83.9	93.2	93.9	89.8	91.6	91.9	95.9
March	85.8	88.0	81.5	93.8	92.8	93.4	85.7	93.7	93.5
April	63.0	75.8	73.7	76.0	87.4	77.8	77.8	83.3	85.3
May	32.4	42.1	38.4	43.6	65.0	54.8	63.3	69.4	80.9
June	20.2	26.2	30.2	34.4	41.3	47.8	55.2	54.8	74.8
July	18.9	22.8	31.8	52.6	39.0	27.2	57.3	56.7	69.2
August	13.9	24.8	41.2	50.2	52.1	24.9	65.4	69.0	73.3
September	19.8	32.6	30.2	58.8	59.9	24.4	65.1	73.3	
October	34.2	36.7	26.1	62.9	69.6	28.1	76.3	81.5	
November	36.1	71.7	53.8	56.5	70.6	32.0	65.3	80.4	
December	62.9	64.5	87.6	74.8	83.1	52.4	72.0	88.6	
Average[2/]	32.7	42.8	45.8	60.9	66.1	52.8	67.8	76.4	

1/ Production and imports.
2/ Weighted average.

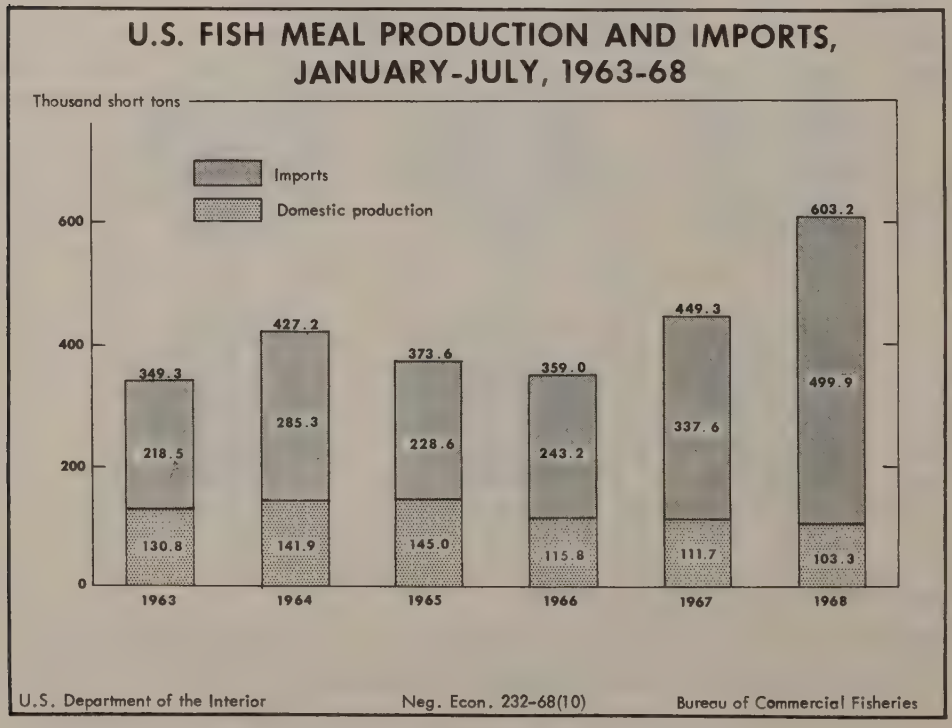

Figure 4

World Fish Meal Production--Up 7 Percent over 1967

World production of fish meal during the first 7 months of 1968 was 7 percent more than in the same period in 1967--2,243,000 metric tons (2,472,400 short tons) compared to 2,095,900 metric tons (2,310,300 short tons) last year (table 10). The above production does not include Japan because monthly figures are not available from that country. Japan has produced between 8 and 10 percent of world fish meal over the last few years.

Peru alone made nearly half of the fish meal in January-July 1968, South Africa and South West Africa made 15 percent, and Norway 11 percent. Over 80 percent of the meal was made by FEO[2/] countries. Last year, 84 percent was made by FEO countries in January-July.

FEO Production during First 7 Months--Up Slightly From 1967

FEO countries produced 1,823,900 metric tons (2,010,500 short tons) of fish meal during January-July 1968 (table 10). This figure includes only January-May production for Angola. Last year during the first 7 months, total production was 1,765,700 metric tons (1,946,300 short tons), and in 1966 was 1,710,900 metric tons (1,885,900 short tons).

Peru produced 58 percent of all the fish meal made by FEO countries during January-July and 47 percent of reported world production. Peru made 1,048,900 metric tons (1,156,200 short tons) of fish meal in the first 7 months of 1968--2 percent above 1967 (table 10). South Africa and South West Africa made 18 percent of the meal in January-July 1968 compared to 14 percent in 1967.

Norway dropped from second to third place in January-July production. In 1967, Norway produced 315,900 metric tons (348,200 short tons) or 18 percent of all FEO meal, compared to 254,600 metric tons (280,600 short tons) or 14 percent in 1968 (table 10). The decline in Norway's production is due to low herring landings. These landings are running about half of what they were in 1967. Landings of mackerel are also lower than last year. Although capelin landings have increased over 1967, the increase is not enough to offset the decrease in herring and mackerel landings.

Fish meal production in Chile increased from 81,100 metric tons (89,400 short tons) in January-July 1967 to 127,000 metric tons (140,000 short tons) in 1968; Iceland's production decreased from 63,000 metric tons (69,400 short tons) in 1967 to 39,800 metric tons (43,900 short tons) in 1968.

Table 10.--FEO[1] and total world production of fish meal, January-July 1966, 1967, and 1968

Country	1966		1967		1968[2]	
	Thousand metric tons	Percent	Thousand metric tons	Percent	Thousand metric tons	Percent
Angola	27.8	1.6	24.1	1.4	[3]19.8	1.0
Chile	153.1	8.9	81.1	4.6	127.0	7.0
Iceland	76.4	4.5	63.0	3.6	39.8	2.2
Norway	277.6	16.2	315.9	17.9	254.6	14.0
Peru	969.4	56.7	1,029.8	58.3	1,048.9	57.5
South Africa, and South West Africa	206.4	12.1	251.8	14.3	333.8	18.3
Total FEO[4]	1,710.9	100.0	1,765.7	100.0	1,823.9	100.0
Total world[5]	2,032.7		2,095.9		2,243.0	
Percent FEO is of world	84.2		84.2		81.3	

[1] Fishmeal Exporters Organization; members are those countries listed in the table.
[2] Preliminary.
[3] Angola: January-May only.
[4] Figures may not add to total because of rounding.
[5] FEO countries plus Belgium, Canada, Denmark, France, Sweden, the United Kingdom, the United States, and West Germany. Includes Morocco and Spain, January-June. Does not include Japan and the U.S.S.R.

Peru's Fish Meal Exports--Up 42 Percent from 1967

Peru exported 1,255,200 metric tons (1,383,600 short tons) of fish meal the first 7 months of 1968--up 42 percent from the same period in 1967 (table 12). Exports from Peru were two-thirds of total FEO exports during January-July 1968, which were 1,874,400 metric tons (2,066,200 short tons). Last year during January-July, 61 percent of FEO exports were from Peru. Norway was the second largest FEO exporter, shipping 263,800 metric tons (290,800 short tons) or 14 percent of total FEO exports.

Through July of this year, 29 percent of Peru's exports came to the United States--compared to 24 percent last year (table 12). Chile shipped 46 percent of her exports to the United States in January-July--compared to only 16 percent last year. Norway shipped 8 percent to the United States this year--compared to 21 percent last year. Of total FEO exports, the U.S. received 22 percent the first 7 months of this year and 19 percent last year (table 12).

Table 11.--Total FEO[1/] exports of fish meal, and FEO exports to the United States, by month, 1966, 1967, and 1968

Month	1966			1967			1968[2/]		
	Total FEO exports	FEO exports to the United States		Total FEO exports	FEO exports to the United States		Total FEO exports	FEO exports to the United States	
	Thousand metric tons	Thousand metric tons	Percent	Thousand metric tons	Thousand metric tons	Percent	Thousand metric tons	Thousand metric tons	Percent
January	198.2	8.0	4.0	180.3	34.2	19.0	279.5	79.1	28.3
February	173.7	19.3	11.1	203.5	36.0	17.7	283.8	39.9	14.0
March	208.8	26.3	12.6	190.6	62.2	32.6	260.9	44.7	17.1
April	181.4	32.6	18.0	198.5	41.5	20.9	259.8	52.8	20.3
May	165.3	27.6	16.7	231.1	31.6	13.7	246.4	56.7	23.0
June	184.9	37.6	20.3	234.1	33.6	14.4	[4/]272.8	68.7	25.2
July	191.4	39.5	20.6	214.0	39.2	18.3	[4/]271.1	77.0	28.4
August	164.2	48.6	29.6	224.2	63.1	28.1			
September	156.2	35.7	22.8	194.9	45.3	23.2			
October	156.5	28.5	18.2	219.1	40.4	18.4			
November	141.3	30.0	21.2	247.9	52.9	21.3			
December	226.8	23.9	10.5	280.1	61.3	21.9			
Total[5/]	2,148.7	357.7	16.6	2,618.4	541.3	20.7			

[1/] Fishmeal Exporters Organization; members are those countries listed in table 10.
[2/] Preliminary.
[3/] Based on imports of fish meal from FEO countries as reported by the U.S. Department of Commerce, Bureau of the Census.
[4/] Does not include exports from Angola.
[5/] Figures may not add to total because of rounding.

Table 12.--FEO[1] exports of fish meal, and FEO exports to the United States, by member country, January-July 1966, 1967, and 1968

Country	1966			1967			1968[2]		
	Total exports	FEO exports to the United States [3]		Total exports	FEO exports to the United States [3]		Total exports	FEO exports to the United States [3]	
	Thousand metric tons	Thousand metric tons	Percent	Thousand metric tons	Thousand metric tons	Percent	Thousand metric tons	Thousand metric tons	Percent
Angola	27.9	-	-	23.8	-	-	[4]12.8	-	-
Chile	117.0	42.7	36.5	56.5	9.1	16.1	81.8	37.8	46.2
Iceland	81.3	-	-	83.2	-	-	44.1	-	-
Norway	129.6	3.5	2.7	251.8	52.8	21.0	263.8	21.4	8.1
Peru	858.3	139.5	16.2	883.4	216.5	24.5	1,255.2	359.8	28.7
South Africa and South West Africa	89.7	4.8	5.4	153.4	-	-	216.8	-	-
Total[5]	1,303.7	190.5	14.6	1,452.1	278.4	19.2	1,874.4	418.9	22.3

[1] Fishmeal Exporters Organization; members are those countries listed in the table.
[2] Preliminary.
[3] Based on U.S. imports of fish meal from FEO countries as reported by the U.S. Department of Commerce, Bureau of the Census.
[4] Angola: January-May only.
[5] Figures may not add to total because of rounding.

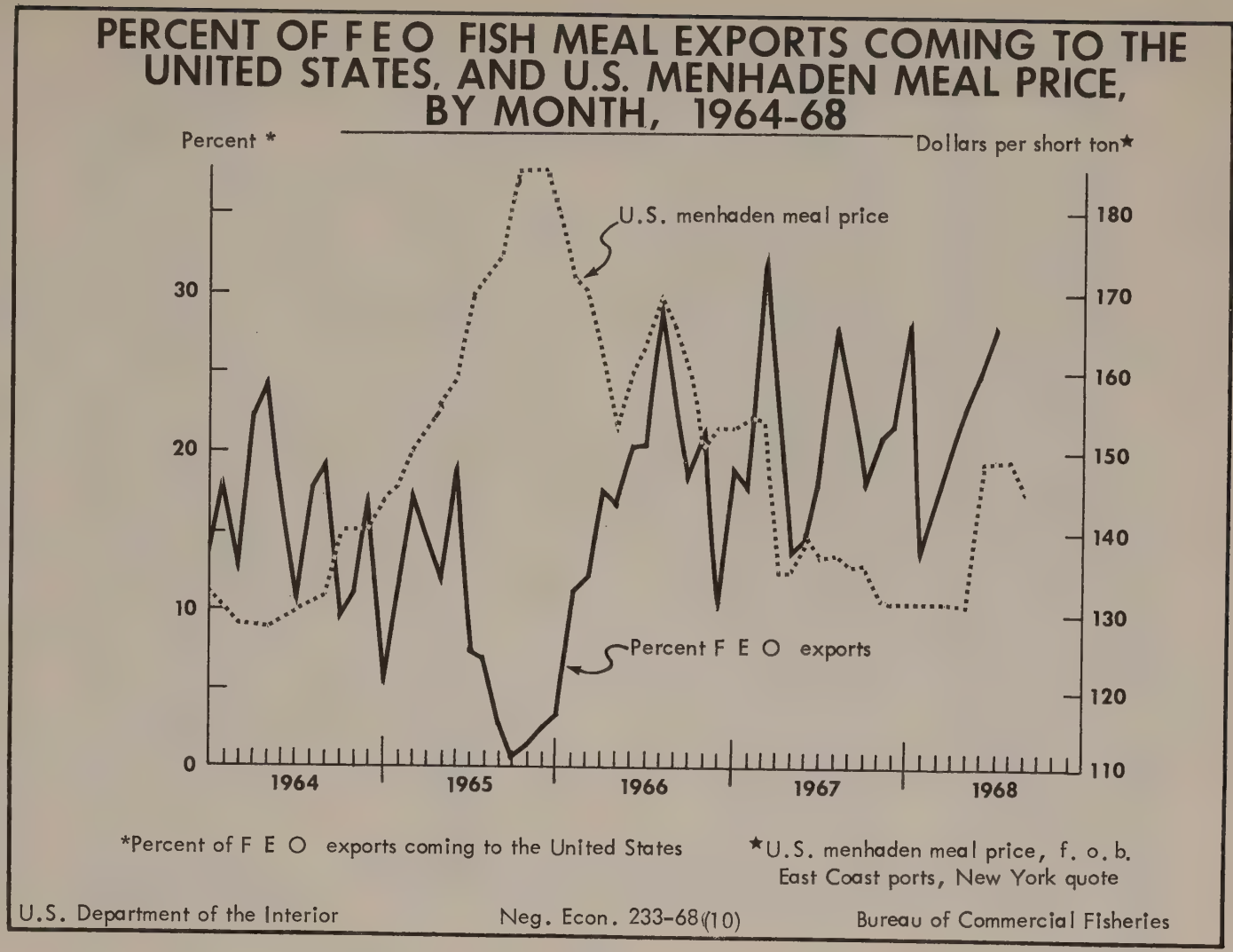
PERCENT OF F E O FISH MEAL EXPORTS COMING TO THE UNITED STATES, AND U.S. MENHADEN MEAL PRICE, BY MONTH, 1964-68
Percent *
Dollars per short ton★
U.S. menhaden meal price
Percent F E O exports
30
20
10
0
180
170
160
150
140
130
120
110
1964
1965
1966
1967
1968
*Percent of F E O exports coming to the United States
★U.S. menhaden meal price, f. o. b. East Coast ports, New York quote
U.S. Department of the Interior
Neg. Econ. 233-68(10)
Bureau of Commercial Fisheries

Figure 5

FEO Stocks--Lowest since April 1966

Total FEO stocks of fish meal were 632,600 metric tons (697,300 short tons) on August 1 of this year, compared to 878,800 metric tons (968,700 short tons) the same time last year, and 690,500 metric tons (761,100 short tons) on August 1, 1966 (table 13). Even though stocks at the beginning of 1968 were 165,700 metric tons more than stocks on January 1, 1967, and production for the first 7 months was slightly above last year, stocks were lower on August 1 because exports were heavier.

Peru held 362,000 metric tons (399,000 short tons) or 57 percent of total FEO stocks on August 1 this year (table 13). Last year on August 1, Peru held 505,400 metric tons (557,100 short tons) of fish meal--40 percent more than this year, but still about the same percentage of total FEO stocks. On September 1, 1968, Peru's fish meal stocks were down to 271,400 metric tons (299,200 short tons).

Table 13.--FEO[1/] fish meal stocks held August 1, 1966, 1967, and 1968

Country	1966		1967		1968[2/]	
	Thousand metric tons	Percent	Thousand metric tons	Percent	Thousand metric tons	Percent
Angola	2.2	0.3	2.5	0.3	N.A.	-
Chile	48.3	7.0	29.6	3.4	57.0	9.0
Iceland	31.0	4.5	21.0	2.4	6.8	1.1
Norway	178.0	25.8	217.9	24.8	116.5	18.4
Peru	333.2	48.2	505.4	57.5	362.0	57.2
South Africa and South West Africa	97.8	14.2	102.5	11.6	90.3	14.3
Total FEO[3/]	690.5	100.0	878.8	100.0	632.6	100.0

1/ Fishmeal Exporters Organization; members are those countries listed in the table.
2/ Preliminary.
3/ Figures may not add to total because of rounding.

Demand

Broiler Chick Placements--About the Same as Last Year for the First 7 Months

Mixed feeds for broiler chicks are the major outlets for fish meal in this country. Therefore, the number of broiler chicks placed on feed during a given period of time is one of the factors which can provide an indication of the demand for fish meal. During the first 7 months of 1968, 1,578.2 million broiler chicks were placed in the 22 major broiler-producing States--about the same as last year but up 10 percent from the 1963-67 average (table 14). During August, 249.9 million broilers were placed--one-fourth more than in 1967, but September placements were one-fifth less than last year. The total number of broilers placed in January-September was 2,007.1 million--still about the same as last year but up 12 percent from the 1963-67 average.

Average Broiler Price Climbs to 15.5 Cents

An indication of the demand for broilers is the average price paid for those broilers. By July of this year, the average price for broilers had climbed to 15.5 cents per pound--the highest since August 1966 (table 14). In August 1968, the average price dropped to 14.8 cents per pound and in September to 14.1 cents per pound.

Decatur Soybean Meal Price--Highest since December 1966

Soybean meal is a major competitor of fish meal in the protein feed market. The average price of soybean meal (50 percent solvent) at Decatur, Ill., was $94.50 per ton in August 1968--a 16-percent increase over the average price at the beginning of the year, and the highest price since September 1966 (table 15). At the end of September 1968, the price was about $90 per ton at Decatur. Average prices of soybean meal at New York are $14 to $16 per ton higher than Decatur prices each month.

Table 14.--Broiler chick placements in 22 States, and average broiler prices at the farm by month, 1965-68

Month	1965		1966		1967		1968[1]	
	Chicks placed	Broiler price	Chicks placed	Broiler price	Chicks placed	Broiler price	Chicks placed	Broiler price
	Million	Cents/lb.	Million	Cents/lb.	Million	Cents/lb.	Million	Cents/lb.
January	204.8	14.6	191.6	16.3	192.0	13.9	195.9	13.5
February	179.2	15.1	199.0	16.4	204.1	15.4	199.4	14.6
March	185.2	15.6	201.3	17.2	217.6	14.3	261.1	14.6
April	244.7	15.0	269.6	15.8	272.9	13.8	216.2	14.2
May	202.4	15.4	217.8	16.7	217.6	13.3	219.8	14.6
June	201.0	15.7	216.6	16.1	214.8	13.5	275.6	15.0
July	240.9	15.5	262.0	16.1	259.7	14.7	210.2	15.5
August	179.1	15.2	192.6	15.7	199.9	12.9	249.9	14.8
September	166.7	14.5	187.0	14.6	224.7	12.6	179.0	14.1
October	209.3	14.2	235.3	13.2	175.0	12.2		
November	175.2	14.6	188.8	13.5	185.7	11.5		
December	180.3	14.6	232.7	12.0	230.8	11.6		
Total placements[2] and average price[3]	2,368.8	15.0	2,594.4	15.3	2,594.8	13.3		

[1] Preliminary.

[2] Figures may not add to total because of rounding.

[3] Simple average.

Sources: Commercial Broilers: Annual Production and Weekly Placements, U.S. Department of Agriculture, Statistical Reporting Service, and Poultry and Egg Situation, U.S. Department of Agriculture, Economic Research Service.

Table 15.--Average monthly price of soybean meal[1/] at Decatur, Ill., 1962-68

Month	1962	1963	1964	1965	1966	1967	1968
	Dollars per short ton						
January	64.60	76.70	85.40	75.40	85.00	89.30	81.30
February	62.20	76.90	82.60	77.20	86.20	85.20	80.20
March	65.50	76.00	82.30	76.10	80.00	83.70	80.40
April	68.30	74.10	80.00	78.40	82.40	80.70	80.90
May	70.90	73.90	74.20	77.70	89.00	80.10	81.90
June	73.10	76.10	73.20	85.10	101.00	87.20	89.10
July	75.90	79.00	72.90	86.00	104.10	85.00	92.00
August	76.60	82.40	71.00	80.50	106.10	86.90	94.50
September	87.30	82.60	77.10	89.20	97.90	87.60	95.50
October	76.10	80.00	76.80	80.80	91.50	78.20	
November	76.20	81.50	72.70	84.50	86.40	78.10	
December	75.80	84.10	75.50	78.30	92.70	79.40	
Average[2/]	72.70	78.60	77.00	80.75	91.85	83.45	

1/ 50 percent protein, bulk.
2/ Simple average.

Source: Feed Market News, U.S. Department of Agriculture, Consumer and Marketing Service, Grain Division.

Table 16.--Ratio of Peruvian fish meal price[1/] to soybean meal price[2/]

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968
January	1.67	1.50	1.78	1.67	1.56	1.88	2.04	1.66	1.48
February	1.70	1.36	1.96	1.60	1.61	1.88	1.98	1.64	1.48
March	1.70	1.41	1.91	1.60	1.61	1.88	2.07	1.61	1.44
April	1.68	1.26	1.91	1.60	1.58	1.89	1.86	1.62	1.42
May	1.72	1.45	1.80	1.61	1.70	1.98	1.75	1.59	1.61
June	1.65	1.63	1.64	1.55	1.72	1.96	1.54	1.50	1.57
July	1.60	1.66	1.57	1.49	1.78	2.01	1.55	1.55	1.56
August	1.58	1.57	1.55	1.40	1.87	2.25	1.52	1.51	1.46
September	1.52	1.76	1.38	1.42	1.75	2.04	1.56	1.47	
October	1.65	1.89	1.66	1.53	1.82	2.29	1.56	1.59	
November	1.77	1.79	1.66	1.51	1.95	2.20	1.68	1.55	
December	1.55	1.81	1.67	1.55	1.87	2.30	1.64	1.52	
Average	1.65	1.58	1.69	1.54	1.73	2.05	1.71	1.57	

1/ F.o.b. East Coast ports for 65 percent protein meal, bagged, as quoted at New York City.
2/ Wholesale at Decatur, Ill., for 50 percent solvent meal, bulk.

Menhaden Meal Price--Up in July, Down in August

The average price for 60 percent protein menhaden meal at New York City during June and most of July was $149 per ton, bagged, f.o.b. East Coast and Gulf points (table 17). During the latter part of July the price rose to $151 per ton and remained at about that price through the first week of August. During the rest of August the average price of menhaden meal dropped $4 from $151 per ton, f.o.b. East Coast and Gulf points, to $147. The average price in September was still lower--$145 per ton.

Price of Peruvian Fish Meal--Declined $8 from July through August

The price of Peruvian fish meal (65 percent protein) continued its rise from the April low of $114.00 to a high of $144.50 per ton, f.o.b. East Coast and Gulf ports, the first part of July (table 18). Prices started to decline the second week in July and had fallen to $136.50 per ton by the end of August and $129.00 by the end of September. The average price for September was $132.75 per ton, f.o.b. East Coast and Gulf ports (table 18).

The continuing high level of fish meal stocks and production in FEO countries were major factors contributing to the lower fish meal prices during August and September.

Table 17.--Average monthly price of menhaden meal[1/] f.o.b. East Coast points 1962-68

Month	1962	1963	1964	1965	1966	1967	1968
	Dollars per short ton						
January	120.40	131.35	132.00	144.15	[2/]179.80	153.10	[2/]131.00
February	122.00	129.00	130.00	146.25	[2/]172.50	[2/]154.00	[2/]131.00
March	123.00	126.15	128.25	150.00	[2/]170.60	[2/]154.00	[2/]131.00
April	124.00	126.50	128.00	153.00	[2/]163.00	135.00	[2/]131.00
May	125.25	125.00	128.25	156.00	[2/]153.80	135.80	[2/]131.00
June	123.00	125.00	129.80	160.90	160.35	139.00	149.00
July	122.70	125.00	130.90	170.25	164.00	137.40	149.65
August	123.25	125.00	131.00	172.10	169.00	137.10	149.00
September	123.75	125.00	132.90	175.00	166.20	136.75	145.00
October	126.80	127.70	140.20	185.40	160.00	136.00	
November	128.25	129.25	140.75	186.00	151.15	[2/]132.00	
December	130.50	133.90	140.75	186.00	153.10	[2/]131.60	
Average[3/]	124.40	127.40	132.75	165.40	163.60	140.15	

[1/]60 percent protein, bagged, as quoted at New York City.
[2/]Nominal price as presented in the Oil, Paint and Drug Reporter.
[3/]Simple average.

Sources: U.S. Department of the Interior, Bureau of Commercial Fisheries, and the Oil, Paint and Drug Reporter.

Table 18.--Average monthly price of Peruvian fish meal[1/] f.o.b. East Coast ports, 1962-68

Month	1962	1963	1964	1965	1966	1967	1968
	Dollars per short ton						
January	114.70	128.00	133.25	141.60	173.00	148.20	120.20
February	121.75	123.00	133.25	144.90	170.90	140.00	119.00
March	125.10	121.90	132.40	142.70	165.80	134.50	116.00
April	130.50	118.50	126.00	148.40	153.75	130.50	115.20
May	127.70	118.90	126.10	153.75	155.40	127.70	131.90
June	120.00	118.10	125.70	166.50	155.50	131.25	140.00
July	119.10	117.80	130.00	172.90	161.00	131.60	143.20
August	118.75	115.85	132.90	181.00	161.00	131.50	137.90
September	120.90	117.10	134.70	182.50	152.25	128.90	132.75
October	126.20	122.75	140.00	184.90	143.10	124.30	
November	126.40	123.25	141.50	186.00	144.80	121.00	
December	126.75	130.40	141.50	180.25	152.50	121.00	
Average[2/]	123.15	121.30	133.10	165.45	157.40	130.85	

[1/] 65 percent protein, bagged, as quoted at New York City.

[2/] Simple average.

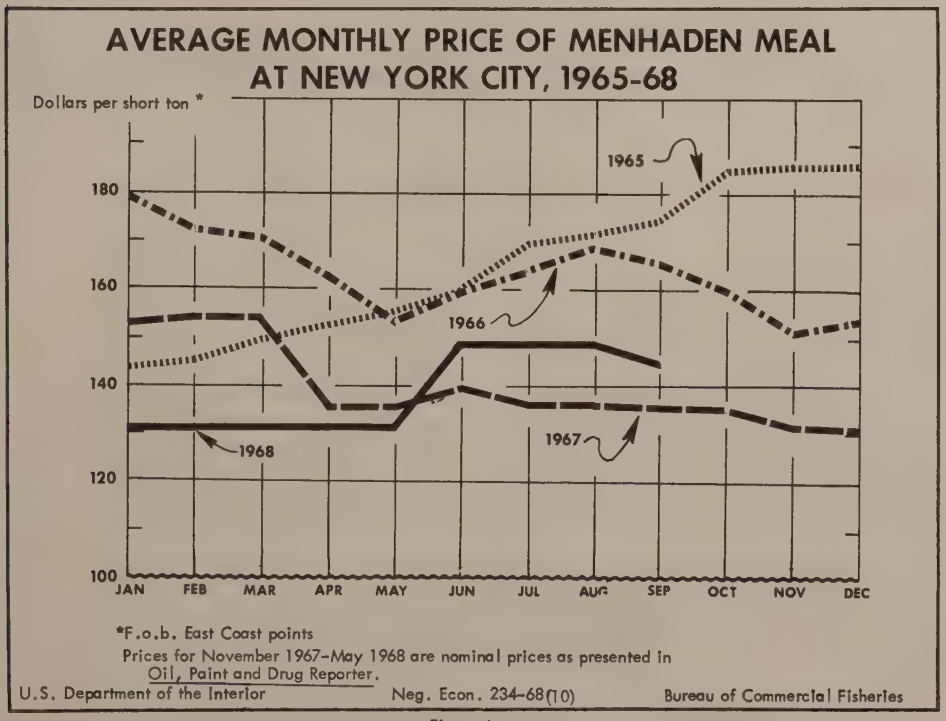

Figure 6

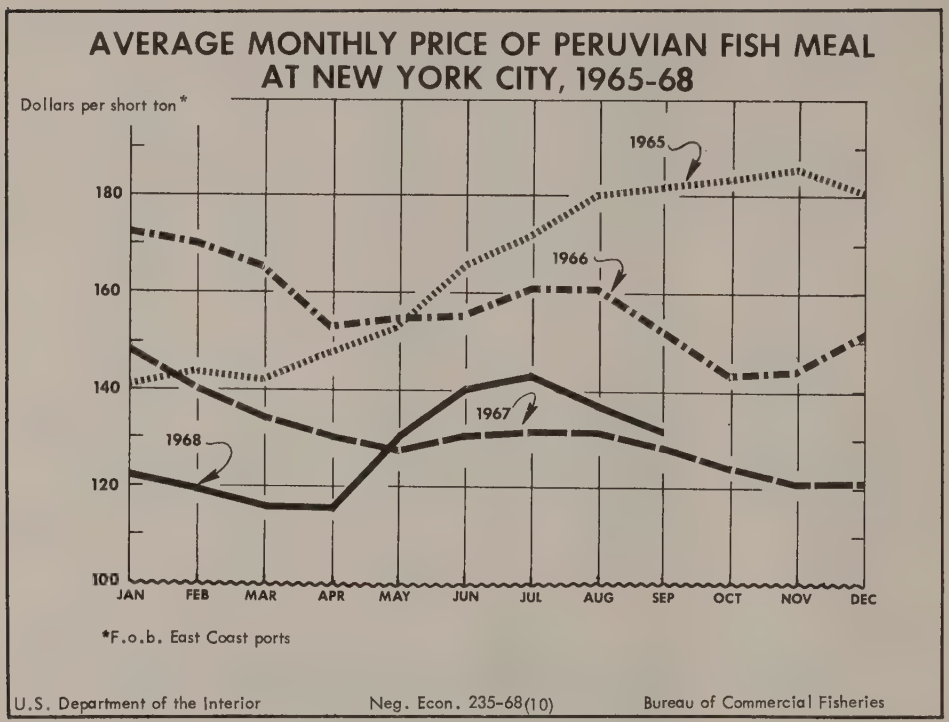

Figure 7

FISH SOLUBLES

Supply

Production of Fish Solubles--Down from 1967

The United States made about 39,200 tons of fish solubles in January-July 1968--down 7 percent from the same period in 1967 and down 23 percent from the 1963-67 average (table 19). Seventy-one percent of the meal was made from menhaden during January-July 1968, whereas 66 percent came from menhaden in 1967 and an average of 73 percent during 1963-67.

Preliminary estimates indicate the United States produced about 11,900 tons of fish solubles during August, putting the January-August total at 51,100 tons--6 percent less than the amount produced in 1967.

Solubles Imports--Down 58 Percent from 1967

The United States imported 1,200 tons of fish solubles during the first 7 months of 1968, less than half the amount imported in 1967, and less than 40 percent of the 1963-67 average (table 20). Peru supplied half of the fish meal imports in January-July 1968; however, imports from that country were nearly two-thirds less than the amount imported from Peru in the first 7 months of 1967.

In August, the United States imported less than 100 tons of fish solubles--about one-fourth coming from Canada.

Total Supplies for January-July--Down 10 percent from 1967

Total supplies of fish solubles--production plus imports--available during January-July 1968 amounted to 40,500 tons compared to 45,100 tons in the same period in 1967 and to the 1963-67 average of 54,300 tons (table 21). Estimated supplies for January-August were 52,400 tons--compared to 57,500 tons in January-August 1967 and to the 1963-67 average of 69,700 tons.

Table 19.--U.S. production of fish solubles by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[1/]
	Thousand short tons								
January	1.7	1.6	1.8	1.6	1.5	1.2	1.4	1.5	0.5
February	1.8	1.6	1.6	1.5	0.9	1.1	1.8	1.1	0.6
March	2.0	2.4	2.0	2.0	1.0	1.1	3.6	2.0	1.6
April	2.6	2.6	3.3	4.1	3.9	3.6	3.6	4.8	4.3
May	7.1	12.3	14.4	15.7	12.9	10.7	8.2	6.9	6.3
June	18.6	16.1	21.6	14.1	18.9	17.8	15.1	13.5	11.1
July	16.7	20.3	21.0	15.2	18.0	18.6	13.9	12.4	14.8
August	14.6	16.9	16.0	18.7	14.7	18.0	12.7	12.2	11.9
September	11.4	10.5	12.2	11.5	9.9	8.8	9.8	6.6	
October	6.5	7.5	13.3	7.4	5.1	6.7	5.3	4.9	
November	3.5	4.2	4.3	4.9	3.8	4.7	5.6	5.3	
December	2.8	4.6	1.7	3.5	2.7	2.5	2.4	3.4	
Total[2/]	89.4	100.6	113.2	100.2	93.3	94.8	83.4	74.6	

1/ Preliminary.

2/ Figures may not add to total because of rounding.

Table 20.--U.S. imports of fish solubles by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[1]
	Thousand short tons								
January	0.2	0.2	0.3	0.1	0.4	0.6	0.2	0.5	0.1
February	1.9	0.2	2.2	0.2	0.5	1.7	2/	0.1	0.1
March	0.1	0.1	0.3	1.1	0.2	0.2	0.2	0.1	0.7
April	0.1	0.2	0.3	0.2	0.4	0.3	1.4	1.8	0.1
May	0.1	0.3	0.3	0.4	0.3	0.2	1.2	0.3	0.1
June	0.1	0.2	0.9	0.3	0.2	0.2	0.2	0.1	0.1
July	0.1	0.7	0.3	0.3	1.5	0.1	0.2	0.1	0.1
August	0.2	0.3	0.4	0.3	0.1	0.2	0.1	0.1	0.1
September	2/	0.3	0.2	0.2	0.2	0.2	0.1	0.2	
October	-	0.1	0.3	0.4	0.2	0.1	0.1	0.2	
November	0.3	3.6	0.4	0.2	0.2	1.2	0.3	0.2	
December	0.1	0.5	0.4	3.2	0.3	0.1	0.2	0.1	
Total[3]	3.2	6.7	6.3	7.1	4.5	5.1	4.3	3.7	

1/ Preliminary.

2/ Less than 50 tons.

3/ Figures may not add to total because of rounding.

Table 21.--Total fish solubles available in the United States: production plus imports, by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[1]
	Thousand short tons								
January	1.9	1.8	2.1	1.7	1.9	1.8	1.6	2.0	0.6
February	3.7	1.8	3.8	1.7	1.4	2.8	1.8	1.2	0.7
March	2.1	2.5	2.3	3.1	1.2	1.3	3.8	2.1	2.3
April	2.7	2.8	3.6	4.3	4.3	3.9	5.0	6.6	4.3
May	7.2	12.6	14.7	16.1	13.2	10.9	9.4	7.2	6.4
June	18.7	16.3	22.5	14.4	19.1	18.0	15.3	13.6	11.2
July	16.8	21.0	21.3	15.5	19.5	18.7	14.1	12.5	14.9
August	14.8	17.2	16.4	19.0	14.8	18.2	12.8	12.3	12.0
September	11.4	10.8	12.4	11.7	10.1	9.0	9.9	6.8	
October	6.5	7.6	13.6	7.8	5.3	6.8	5.4	5.1	
November	3.8	7.8	4.7	5.1	4.0	5.9	5.9	5.5	
December	2.9	5.1	2.1	6.7	3.0	2.6	2.6	3.5	
Total[2]	92.6	107.3	119.5	107.3	97.8	99.9	87.7	78.3	

1/ Preliminary.

2/ Figures may not add to total because of rounding.

Demand

Even though prices for fish solubles remain quite favorable relative to prices for fish meal and other substitutes, the utilization of solubles has been very light through September of this year.

Prices

The average price of menhaden solubles during August was $52.50 per ton f.o.b. East Coast plants, and in September was $51.90 per ton--the lowest since September 1961 when the average was $49.70 per ton. Fish solubles prices have declined steadily since December 1966 when they averaged $81.90 (table 22).

Table 22.--Average monthly price of menhaden solubles[1/] f.o.b. East Coast plants, 1962-68

Month	1962	1963	1964	1965	1966	1967	1968
	Dollars per short ton						
January	58.00	65.00	75.00	58.60	66.25	80.85	60.50
February	58.75	66.25	75.00	59.40	66.50	79.00	63.75
March	59.60	62.50	62.25	61.25	66.70	70.75	61.25
April	59.70	61.25	62.25	56.25	68.75	64.60	56.25
May	56.25	61.25	62.25	53.75	68.75	64.00	54.05
June	53.10	61.25	62.25	55.75	68.75	64.40	53.75
July	53.25	61.25	62.25	56.85	68.75	64.05	53.50
August	54.00	61.75	61.95	60.00	68.75	62.85	52.50
September	55.40	64.10	61.20	61.25	72.50	61.25	51.90
October	58.30	66.55	61.05	63.95	78.75	60.75	
November	64.95	75.00	61.25	65.25	79.25	60.00	
December	64.15	75.65	61.25	66.25	81.90	60.00	
Average[2/]	57.95	65.15	64.00	59.90	71.30	66.05	

[1/] In tank cars; prices quoted at New York City.

[2/] Simple average.

FISH OIL

Supply

January-July Production of Fish Oil--Up 31 Percent from 1967

The United States produced about 75.7 million pounds of fish oil during the first 7 months of 1968--nearly a third more than during the same period in 1967, but still well below the 1963-67 average (tables 23 and 24). Most of the increase in production came in July when 37.2 million pounds were produced compared to 21.6 million pounds in July 1967--a 72-percent increase (table 23).

Most of the fish oil--87 percent--came from menhaden in January-July 1968 compared to 82 percent in 1967 (table 24). Gulf Coast plants produced most of the menhaden oil in the 7-month period--50.5 million pounds or 76 percent of all menhaden oil made. The rest of the menhaden oil production was divided mostly between Middle Atlantic and Chesapeake Bay plants.

The balance of the fish oil--9.6 million pounds--was made from herring, tuna, mackerel, anchovies, and other industrial fish.

Production for August is estimated at 30.9 million pounds, making the January-August 1968 total about 106.6 million pounds--up one-third from 1967. Eighty-eight percent of the January-August total came from menhaden, and most of this oil--75 percent--was made in Gulf Coast plants.

Table 23.--U.S. production of fish oil by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968 1/
	Million pounds								
January	0.5	0.5	0.8	0.5	0.5	0.6	0.4	1.2	0.9
February	0.6	0.4	0.4	0.4	0.2	0.5	0.2	0.6	0.6
March	0.6	0.5	0.4	0.4	0.7	0.7	1.0	0.9	1.1
April	2.5	3.5	5.7	6.5	4.4	10.6	5.5	3.6	4.0
May	16.9	35.8	33.4	33.5	29.9	23.2	19.3	9.4	10.8
June	37.1	51.3	54.9	28.2	42.9	41.6	34.7	20.5	21.0
July	41.8	59.1	47.7	29.0	33.8	41.6	29.6	21.6	37.2
August	38.1	51.3	33.4	34.6	28.4	37.8	22.5	22.4	30.9
September	33.8	26.0	31.2	21.2	19.8	18.1	20.5	13.6	
October	23.5	16.1	39.0	15.0	5.6	9.5	7.8	9.3	
November	12.5	10.6	8.3	10.1	8.3	8.2	16.4	13.5	
December	8.0	11.6	0.7	6.4	5.7	3.1	6.8	5.8	
Total 2/	215.9	266.7	255.9	185.8	180.2	195.5	164.7	122.4	

1/ Preliminary.

2/ Figures may not add to total because of rounding.

Table 24.--U.S. production of fish oil by raw material source, January-July 1967, 1968, and 1963-67 average

Source	1963-67 average		1967		1968[1]	
	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent
Alewives	0.6	0.6	1.5	2.5	[2]	-
Groundfish	1.0	1.0	-	-	[2]	-
Herring	3.8	4.0	2.3	4.0	1.4	1.8
Menhaden[3]	85.2	89.1	47.5	82.0	66.1	87.4
Tuna, mackerel, and anchovies	2.4	2.5	3.4	5.9	2.2	2.9
Unclassified	2.6	2.8	3.2	5.6	6.0	7.9
Total[4]	95.6	100.0	57.9	100.0	75.7	100.0

[1] Preliminary

[2] Included in "unclassified."

[3] Includes a small quantity of other species.

[4] Figures may not add to total because of rounding.

Note: Percents are calculated with unrounded numbers.

Whale Oil Imports--Up 29 Percent from 1967

During January-July 1968, the United States imported 34.1 million pounds of crude and refined whale oil--up 29 percent from the amount imported during the same period last year and down only 1 percent from the 1963-67 average (table 25). Nearly all of the oil imported the first 7 months was sperm oil. Japan supplied slightly over half of the oil imports in the first 7 months of 1968--compared to only 3 percent in 1967. Last year, most of the imports came from the Netherlands. Peru supplied 30 percent of the imports in January-July 1968--compared to 23 percent last year.

Sperm oil imports for August 1968 were 1.4 million pounds--compared to 9.6 million pounds during August last year. The January-August total for 1968 was 35.4 million pounds and for 1967, 36.0 million pounds.

Fish Oil Stocks on August 1--103.6 Million Pounds

Stocks of fish oil in the United States on August 1, 1968 were 103.6 million pounds--up 30 percent from stocks held at the beginning of the year (table 26). These stocks do not include sperm oil. On August 1 a year ago, fish oil stocks were 102.4 million pounds and the 1963-67 average for August 1 is 88.1 million.

Table 25.--U.S. imports of crude and refined whale oil by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968
	Millions of pounds								
January	11.2	2.8	2.3	1.6	3.1	9.9	7.8	0.1	1.1
February	-	-	2.1	0.3	0.1	4.5	8.3	6.8	2/
March	0.9	5.2	1.1	1.3	0.2	1.8	7.1	3.3	1.9
April	2/	8.8	2.0	0.9	1.5	0.1	-	8.7	12.5
May	-	9.3	10.9	15.6	24.3	1.7	3.0	1.6	9.0
June	3.5	1.4	8.7	15.4	0.5	4.8	6.2	4.4	7.2
July	4.9	3.0	6.0	1.2	7.6	18.2	0.2	1.5	2.3
August	1.9	5.6	-	7.2	1.7	0.8	6.6	9.6	1.4
September	2.4	2.3	3.6	8.4	1.9	20.8	0.2	2/	
October	0.7	17.9	-	6.5	0.8	1.6	4.5	1.1	
November	12.0	0.7	28.5	7.7	16.8	11.6	0.9	11.6	
December	-	3.5	4.0	1.4	0.3	1.2	13.4	2.6	
Total 3/	37.5	60.5	69.2	67.3	58.8	77.1	58.2	51.3	

1/ Preliminary.
2/ Less than 50,000 pounds.
3/ Figures may not add to total because of rounding.

Table 26.--U.S. stocks of fish oil at the beginning of the month, 1962-68 1/

Month	1962	1963	1964	1965	1966	1967	1968 2/
	Million pounds						
January	94.0	125.9	96.9	70.9	100.4	99.4	80.0
February	87.9	113.3	60.4	68.6	85.4	97.2	83.3
March	79.2	115.5	47.0	55.2	75.0	90.8	61.0
April	69.6	88.2	42.2	50.4	60.5	62.2	55.8
May	66.8	59.8	43.9	54.6	60.3	73.4	64.4
June	91.1	77.3	46.7	69.0	63.1	97.4	69.1
July	107.7	97.4	55.5	80.9	64.7	100.7	82.4
August	128.9	87.4	66.8	103.3	80.4	102.4	103.6
September	110.8	96.0	78.0	136.2	87.9	103.2	116.6
October	123.7	95.9	87.7	110.9	111.0	95.9	
November	133.3	76.8	66.9	101.7	102.1	102.4	
December	119.6	123.9	75.2	111.4	120.0	99.4	
Average	101.0	96.4	63.9	84.4	84.2	93.7	

1/ Includes mammal oil other than sperm oil, and includes hydrogenated fats and other fats and oils "in process."
2/ Preliminary.

Source: Current Industrial Reports: Fats and Oils, Series M20K, U.S. Department of Commerce, Bureau of the Census.

Domestic Use of Inedible Fish Oil--Below 1967 for First 7 Months

In January-July 1968, the United States used 18.5 million pounds of fish oil in the production of paint, varnish, resin, plastics, lubricants, and other inedible products (table 27). This amount is 16 percent less than the amount used in the same period last year and 27 percent less than the 1963-67 average.

January-July Fish Oil Exports--Down 37 Percent from 1967

The United States exported 19.8 million pounds of fish oil in January-July 1968--less than two-thirds of the amount exported the same period in 1967 and 73 percent less than the 1963-67 average. Ninety-five percent--18.9 million pounds--of the oil exported was menhaden oil. Last year, 99 percent was menhaden.

Most of the fish oil--14.9 million pounds or three-fourths of the total--was exported to Sweden, while the remainder went to the Netherlands (17 percent) and Canada (8 percent) (table 29). Last year, 38 percent went to the Netherlands (more than double the 1968 figure), 33 percent went to Sweden (less than half the 1968 figure), 21 percent to the United Kingdom, and most of the rest to West Germany.

In August, the United States exported 7 million pounds of fish oil, practically all of which was menhaden oil. Nearly all the oil--99 percent--went to Sweden. The January-August total for 1968 was 26.8 million pounds--compared to 56.4 million pounds for 1967.

Table 27.--U.S. industrial consumption of inedible fish oil[1/], by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[2/]
					Million pounds				
January	4.4	5.0	5.2	5.0	3.9	3.2	2.4	2.9	2.6
February	3.7	4.5	5.0	3.8	3.9	3.2	3.5	2.8	2.6
March	4.9	5.9	5.3	3.9	3.9	3.3	3.3	2.8	3.0
April	4.0	5.1	5.3	4.0	4.6	3.4	3.5	4.1	2.5
May	4.1	5.7	5.5	4.2	4.2	3.0	3.7	3.1	2.6
June	5.1	5.4	6.3	4.7	4.0	4.0	3.8	3.3	2.5
July	4.7	5.7	5.0	5.0	3.4	3.2	2.7	3.0	2.7
August	5.9	5.7	5.0	4.6	4.7	4.5	3.7	3.1	2.2
September	5.7	5.7	5.2	4.2	4.2	4.3	3.9	3.2	
October	4.9	5.5	5.3	5.0	3.8	3.9	2.5	2.4	
November	4.9	5.1	4.8	3.7	3.6	4.4	2.7	2.5	
December	4.5	5.5	5.0	4.0	3.5	4.1	3.1	2.6	
Total[3/]	56.8	64.8	62.9	52.1	47.7	44.5	38.8	35.8	

1/ Includes mammal oil other than sperm oil.
2/ Preliminary.
3/ Figures may not add to total because of rounding.
Source: Current Industrial Reports: Fats and Oils, Series M20K, U.S. Department of Commerce, Bureau of the Census.

Table 28.--U.S. exports of fish oil by month, 1960-68

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968[1/]
	Million pounds								
January	2.1	13.5	0.5	0.1	0.2	0.1	2.3	17.9	0.9
February	23.8	17.5	21.6	2.4	23.5	0.1	4.2	2/	6.0
March	3.2	5.6	19.1	44.4	0.2	11.4	9.9	10.5	12.6
April	5.7	7.4	10.3	28.5	22.8	0.1	0.1	2/	0.1
May	2.4	3.2	6.5	22.1	9.3	0.3	17.8	0.1	2/
June	15.6	21.0	4.9	0.3	0.1	18.1	12.9	0.8	2/
July	40.6	4.4	0.1	29.3	40.5	16.2	19.5	2.3	0.1
August	1.4	13.3	33.3	37.5	9.6	21.2	6.1	24.8	7.0
September	14.0	9.5	0.2	22.4	14.2	13.5	2/	10.2	
October	4.4	15.2	26.1	41.9	19.8	10.8	4.3	5.7	
November	14.6	1.4	0.2	0.1	0.1	0.2	0.1	2.2	
December	15.8	10.5	0.2	33.3	11.1	11.8	0.1	2.3	
Total	143.6	122.5	123.0	262.3	151.4	103.8	77.3	76.8	

1/ Preliminary.

2/ Less than 50,000 pounds.

Table 29.--U.S. exports of fish oil by country of destination, January-July 1967, 1968, and 1963-67 average

Country	1963-67 average		1967		1968[1/]	
	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent
Canada	1.8	2.4	0.3	0.9	1.5	7.6
Netherlands	14.4	19.5	12.0	38.0	3.4	17.2
Norway	8.5	11.5	-	-	-	-
Sweden	21.0	28.5	10.5	33.2	14.9	75.2
United Kingdom	15.6	21.2	6.6	20.9	2/	-
West Germany	8.7	11.8	1.5	4.7	2/	-
Other	3.7	5.0	0.8	2.5	0.1	-
Total[3/]	73.7	100.0	31.6	100.0	19.8	100.0

1/ Preliminary.

2/ Less than 50,000 pounds.

3/ Figures may not add to total because of rounding.

Prices

Menhaden Oil Prices--Drop Still Further

In August the average price of menhaden oil quoted at New York fell to 4.55 cents per pound f.o.b. East Coast plants--the lowest price since December 1962, when the average was 4.00 cents per pound (table 30). Menhaden oil prices have been on a steady downward trend since May 1966, when the average price was 9.75 cents per pound.

Prices dropped still further in September--from a price range of 4.00 to 5.00 cents at the beginning of the month to 3.75 to 4.75 cents at the end of the month. The average for September was 4.4 cents per pound f.o.b. East Coast plants. Prices for Gulf Coast plants were 3.5 to 4.0 cents per pound the last week in September.

Table 30.--Average monthly price of menhaden oil[1/] f.o.b. East Coast plants, 1962-68

Month	1962	1963	1964	1965	1966	1967	1968
	Cents per pound						
January	4.75	4.70	8.40	9.15	9.50	8.90	6.00
February	4.75	5.40	8.35	9.50	9.70	8.90	6.10
March	4.75	5.50	8.50	9.50	9.75	8.60	5.75
April	4.75	5.75	8.75	9.50	9.75	7.20	5.35
May	4.70	5.60	8.50	9.45	9.75	6.90	5.25
June	4.40	6.50	8.65	9.15	9.60	6.95	5.25
July	4.20	6.75	8.75	8.95	9.40	6.70	4.85
August	4.25	7.10	8.80	9.30	9.00	6.00	4.55
September	4.05	7.30	9.05	9.50	9.45	5.80	4.40
October	3.95	7.60	9.20	9.50	9.45	6.00	
November	4.00	7.75	9.40	9.50	9.20	6.00	
December	4.00	8.00	9.40	9.50	8.90	6.00	
Average[2/]	4.40	6.50	8.80	9.35	9.45	7.00	

[1/] Crude oil in tank cars; prices quoted at New York City.

[2/] Simple average.

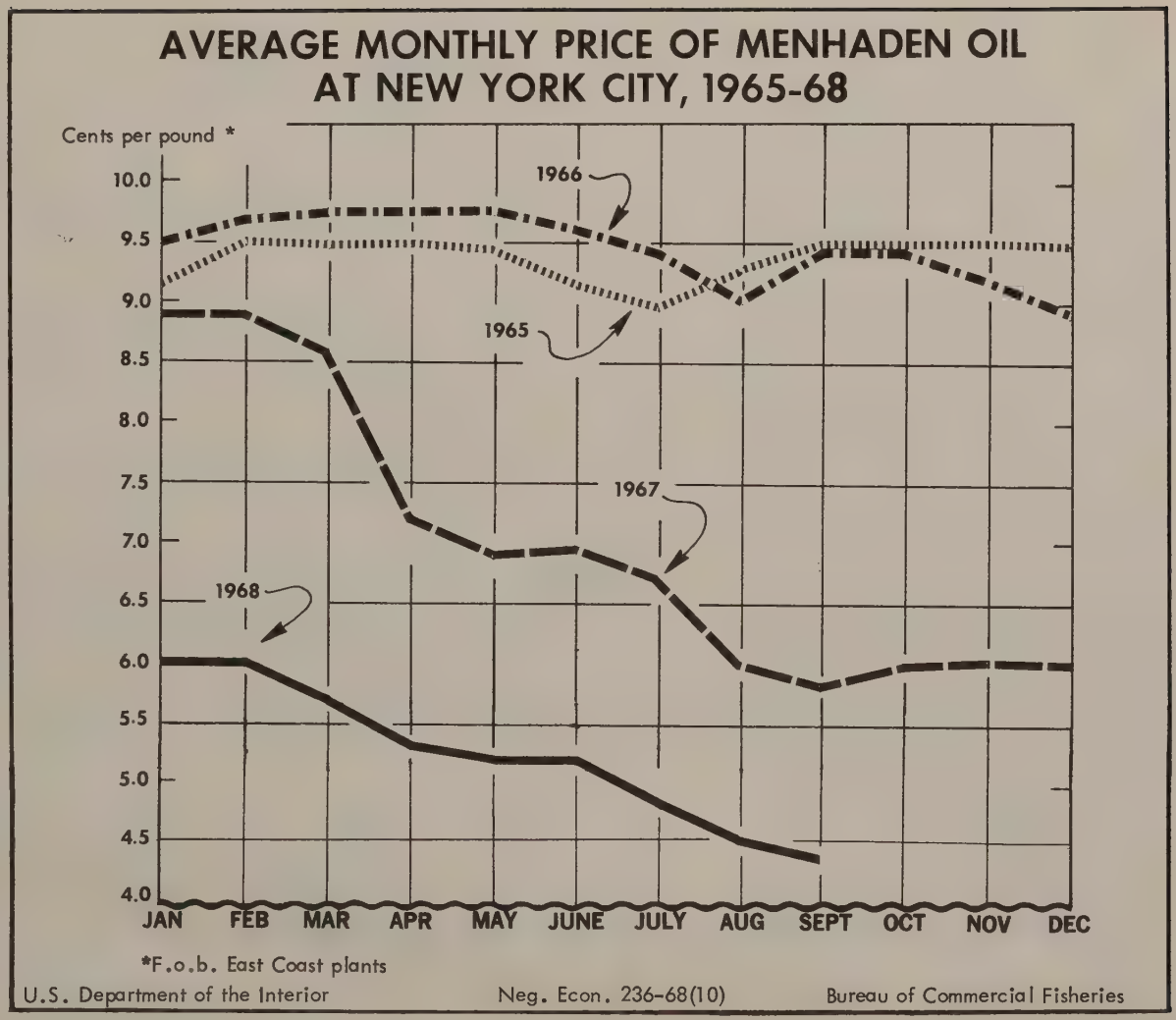
AVERAGE MONTHLY PRICE OF MENHADEN OIL
AT NEW YORK CITY, 1965-68
Cents per pound *
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
1966
1965
1967
1968
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
*F.o.b. East Coast plants
U.S. Department of the Interior
Neg. Econ. 236-68(10)
Bureau of Commercial Fisheries

Figure 8

OUTLOOK

October-December 1968

FISH MEAL

Supply

As indicated in the Review section, production of menhaden meal through July of this year was 10 percent greater than last year while production of meal from other industrial fish was nearly a third less than last year. These trends are expected to continue through the fourth quarter. We estimate about 33,000 tons of fish meal will be made the fourth quarter; about 70 percent, or 23,000 tons, of this will be menhaden meal. Last year during October-December, 21,800 tons of menhaden meal were produced; the total was 35,800 tons.

The amount of fish meal imported into the United States during a given period depends on supplies of fish meal available in the major producing countries, the price of fish meal (as a contributor of essential amino acids) in relation to competing feed ingredients, and on the price of fish meal in the United States in relation to the price of fish meal in Europe. The price of fish meal in both the United States and Europe is influenced by the price of competing feed ingredients, the current and anticipated domestic supplies of fish meal, the marketing practices of fish meal producers and brokers, and by world and domestic consumption rates for fish meal. These consumption rates are determined by current and anticipated number of animal units to feed and the price of meal in relation to the price of competing feed ingredients taking into consideration the nutrients provided by each.

Historically, the major supplier of fish meal to the United States during the fourth quarter has been Peru. Peru sent 114,700 short tons of fish meal to the United States in October-December 1967--62 percent of total fourth quarter imports. The 1963-67 average is 60,600 tons--65 percent of total imports. Imports from all FEO countries totaled 170,300 tons in 1967--93 percent of total U.S. imports during the fourth quarter.

As noted in the section on FEO stocks, Peru held 271,400 metric tons (299,200 short tons) on September 1. If production, exports, and local consumption during September are the same as last year, stocks at the beginning of the fourth quarter will be 209,700 metric tons (231,200 short tons). If Peru's production is as high this year as last during the fourth quarter--733,800 metric tons (808,900 short tons)--then the amount available for export during the fourth quarter

would be 1,040,000 short tons. This amount of meal--together with meal available in other FEO countries--would be more than enough to satisfy U.S. needs.

If the ratio of the price of Peruvian fish meal at New York to the price of 50 percent soybean meal at Decatur, Ill., remains the same through the fourth quarter 1968 as it was the first week in October--i.e., 1.4 to 1--and the ratio of the price of Peruvian meal at New York to the price of Peruvian meal at European ports is about 1.1 to 1, then imports during the fourth quarter probably will be at least as high as last year--183,400 tons--and perhaps as much as 200,000 tons or more. At least 65 percent of these imports are expected to come from Peru.

Under the above price and market conditions, total supplies of fish meal (except stocks) available for use in the United States during the fourth quarter of 1968 probably will be at least 216,000 tons and could be as high as 233,000 tons or more.

However, there is a good possibility that soybean meal price will drop during the fourth quarter because of heavy supplies of soybeans. If the ratio of Peruvian fish meal price to the price of soybean meal at Decatur rose to around 1.5 to 1, and the other ratio remained about 1.1 to 1, then imports--and therefore total supplies--could be about 20,000 tons less than the above figures.

Demand

As mentioned above, the amount of fish meal used during a given period depends on the number of animal consuming-units--particularly broilers which use at least 70 percent of the domestic meal, and on the ratio of the price of fish meal to the price of those feed ingredients supplying some of the same nutrients.

The Bureau of Commercial Fisheries estimates at least 600 million broiler chicks--and possibly up to 650 million chicks--will be placed on farms in the 22 major broiler-producing States during the fourth quarter of 1968. If the ratio between the price of Peruvian fish meal and the price of soybean meal is about 1.4 to 1 during the fourth quarter and if 600 million broilers are placed, the Bureau estimates the United States would use 160,000 to 190,000 tons of fish meal in October-December. If up to 650 million chicks are placed, then up to 210,000 tons could be used. If the price ratio increased, e.g. due to lower soybean meal prices, less fish meal probably would be used.

Prices

Prices for 60 percent menhaden meal the last week in September were $138 to $140 per ton f.o.b. East Coast points, and for 65 percent fish meal from Peru were $128 to $130 per ton f.o.b. East Coast ports. How much and in what direction fish meal prices change from the above prices during the fourth quarter depend on the general production and consumption situation for fish meal during that quarter and on the marketing policies of the major suppliers of fish meal, particularly Peru.

As pointed out above, world and domestic supplies of fish meal will be more than enough to meet the demand for that meal during the fourth quarter, so that domestic and world prices probably will not be much above the September level. Also, soybean meal prices are expected to be lower in the fourth quarter than they were in September. Low soybean meal prices will tend to hold fish meal prices down.

FISH SOLUBLES

Supply

Since 1965, between 13,000 and 14,000 tons of fish solubles have been produced during the fourth quarter. Production during the fourth quarter of this year is also expected to fall within this range.

Imports of fish solubles in the fourth quarter of the last 2 years have not been over 600 tons and are not expected to be much over that figure in the last quarter of this year. Therefore, total supplies of solubles (excluding stocks) are estimated to be not over 15,000 tons during October-December 1968.

Demand

The use of fish solubles has declined steadily since 1962 when apparent consumption was 119,500 tons for the year and 20,400 tons in the fourth quarter. In 1967, apparent consumption for the year was 78,300 tons and for the fourth quarter was 14,000 tons. Recently, this lagging use has been reflected in prices for fish solubles which have been falling steadily since December 1966. The last week in September, prices were $50.00 to $52.50 per ton f.o.b. East Coast plants. The future use and prices of fish solubles are difficult to foretell at the present time.

FISH OIL

Supply

The annual production of fish oil has declined fairly steadily since 1961 when 255.9 million pounds were produced. In 1967, 122.4 million pounds were made--less than half the 1961 figure. An analysis of the trend of oil production over the past 8 years indicates that less than last year's 28.6 million pounds will be made during October-December 1968.

However, another analysis, relating fourth quarter oil production to production in the first 8 months of the year indicates more fish oil will be made this year than last in the fourth quarter--possibly over 30 million pounds. As mentioned previously, production for the first 8 months of 1968 was well above last year--106.6 million pounds compared to 80.2 million pounds.

Over 80 percent of the fish oil made in the fourth quarter probably will come from menhaden.

Demand

Both annual and fourth quarter use have declined steadily since 1961. This trend which has continued through the first 8 months of this year indicates consumption in the fourth quarter would be 7.0 to 7.5 million pounds. However, current ratios between menhaden oil price and the prices of competing industrial oils, such as tall, tung, and linseed, point to an increase in the use of fish oil in the United States.

Compared to prices of other industrial oils, the price of fish oil in August and September favored the domestic use of that oil over competing industrial oils. The average price of menhaden oil in August was 4.55 cents per pound f.o.b. East Coast plants, and in September had fallen to 4.25 cents per pound. Prices of raw linseed oil, crude tall oil, tung oil, and crude soybean oil have also been declining but not as much percentage-wise as menhaden oil. Therefore, the ratios between the price of menhaden oil and the prices of these competing industrial oils are as low as they have been for quite a while--5 years for tall oil and tung oil. If this relation continues through the fourth quarter, consumption of fish oil should be more than last year. We estimate up to 11 million pounds could be used in the fourth quarter.

REDUCED TARIFFS ON INDUSTRIAL FISHERY PRODUCTS

The United States and over 50 other member nations of GATT (General Agreement on Tariffs and Trade) concluded the largest and most comprehensive trade negotiations in history in the summer of 1967.

The initial tariff reductions on U.S. imports did not enter into force until January 1, 1968. The reductions generally will be made in five equal stages. After the first stage is completed, the others in most cases will be made at 1-year intervals. Thus, the effect will be gradual, giving industry a chance to adjust to the changes brought about by the tariff reductions.

Although fish meal is imported duty-free, several fish oils and marine mammal oils have tariffs. None of the tariffs on industrial fishery products will be eliminated at the end of the 5-year period; most will be reduced by 50 percent.

Following is a list of industrial fishery products in terms of the Tariff Schedules of the United States Annotated (1968) showing the duty prior to the negotiations and the staged rates of duty for 1968-72. The 1972 rate will remain in effect until it is renegotiated or changed by other means.

Table 31.--Tariffs on industrial fishery products, 1968-72 and future

Product	Prior rate	1968	1969	1970	1971	1972
Cod-liver solubles	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.
Fish liver oils other than cod	5% ad val.	4% ad val.	4% ad val.	3% ad val.	3% ad val.	2.5% ad val.
Anchovy oil	1.5¢ per lb.	1.3¢ per lb.	1.2¢ per lb.	1¢ per lb.	0.9¢ per lb.	0.75¢ per lb.
	+10% ad val.	+9% ad val.	+8% ad val.	+7% ad val.	+6% ad val.	+5% ad val.
Eulachon oil	1.5¢ per lb.	1¢ per lb.	1¢ per lb.	1¢ per lb.	0.7¢ per lb.	0.7¢ per lb.
Herring oil	0.92¢ per lb.	0.8¢ per lb.	0.7¢ per lb.	0.6¢ per lb.	0.55¢ per lb.	0.46¢ per lb.
Menhaden oil	3.33¢ per lb.	3¢ per lb.	2.65¢ per lb.	2.35¢ per lb.	2¢ per lb.	1.7¢ per lb.
Shark oil	0.85¢ per lb.	0.75¢ per lb.	0.68¢ per lb.	0.59¢ per lb.	0.51¢ per lb.	0.4¢ per lb.
	+4% ad val.	+3.5% ad val.	+3% ad val.	+2.5% ad val.	+2% ad val.	+2% ad val.
Other fish oil	1.5¢ per lb.	1.3¢ per lb.	1.2¢ per lb.	1¢ per lb.	0.9¢ per lb.	0.7¢ per lb.
	+10% ad val.	+9% ad val.	+8% ad val.	+7% ad val.	+6% ad val.	+5% ad val.
Seal oil	1.9¢ per lb.	1.7¢ per lb.	1.5¢ per lb.	1.3¢ per lb.	1.1¢ per lb.	0.95¢ per lb.
Sperm oil, crude	0.065¢ per lb.	0.03¢ per lb.	0.03¢ per lb.	0.03¢ per lb.	0.03¢ per lb.	0.03¢ per lb.
Sperm oil, other than crude	0.47¢ per lb.	0.4¢ per lb.	0.35¢ per lb.	0.3¢ per lb.	0.25¢ per lb.	0.2¢ per lb.
Whale oil (except sperm)	1.26¢ per lb.	1¢ per lb.	1¢ per lb.	0.6¢ per lb.	0.6¢ per lb.	0.6¢ per lb.
Other marine animal oil	1.5¢ per lb.	1.35¢ per lb.	1.2¢ per lb.	1.05¢ per lb.	0.9¢ per lb.	0.75¢ per lb.
	+10% ad val.	+9% ad val.	+8% ad val.	+7% ad val.	+6% ad val.	+5% ad val.
Grass, velvet or yellow sponges	7.5% ad val.	6.5% ad val.	6% ad val.	5% ad val.	4% ad val.	3.5% ad val.
Sheepswool sponges	12% ad val.	10.5% ad val.	9.5% ad val.	8% ad val.	7% ad val.	6% ad val.
Hardhead or reef sponges	4% ad val.	3.5% ad val.	3% ad val.	2.5% ad val.	2% ad val.	2% ad val.
Carrageenin	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.

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